

Exchange-Rate Pass-Through to Consumer Prices in a Collapsing Peg:**Evidence from Lebanon's Parallel Market, 2019–2026**Author: Catherine Mansour¹*Affiliation:*

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Abstract:

Through this study, I examine how much the collapse of the Lebanese pound passed through into consumer prices between the failure of the 1,507.5 LBP/USD peg in 2019 and the parallel market's stabilization around 89,500 LBP/USD. Lebanon offers an exceptionally clean setting to analyze exchange-rate pass-through: it is a small, import-reliant, heavily dollarized economy whose currency surrendered 98% of its value in under four years while the official rate stayed fixed. I build a monthly dataset covering 99 observations (January 2018 to March 2026) by combining the Central Administration of Statistics' consumer price index with the World Bank's Real-Time Exchange Rate parallel market estimates, which I cross-validated against crowd-sourced quotes from lirate.org (yielding a 0.9999 correlation). Econometrically, I evaluate short-run dynamics using distributed-lag regressions with Newey–West standard errors, identify long-run relationships through cointegrating regressions and an error-correction model, and track structural changes over time via 24-month rolling regressions. Three main results stand out. First, total pass-through over the entire crisis was complete: consumer prices climbed 78-fold compared to a 59-fold surge in the parallel exchange rate, translating to a cumulative log elasticity of 1.07. Second, short-run transmission was quick yet partial: about 35–41% of any given month's depreciation hit the CPI within that same month, reaching roughly 46% within a quarter, while the remaining imbalance closed through error correction at 7.5% monthly (a half-life of nine months). Third, pass-through was unsteady over time: the rolling coefficient more than doubled from 0.29 in late 2021 to 0.67 by mid-2024 as local merchants shifted directly to pricing in USD. Even after the exchange rate froze in August 2023, prices continued rising by another 74% as subsidized and state-controlled prices adjusted upward, leaving annual inflation at 12–17% rather than dropping to zero. Ultimately, these findings reinforce Taylor's (2000) hypothesis that higher inflation environments amplify pass-through, proving that stabilizing the exchange rate is essential but not enough on its own to stop inflation in a dollarized economy.

Keywords:

Exchange-Rate Pass-Through, Parallel Market, Hyperinflation, Dollarization, Consumer Prices, Currency Collapse, Lebanon

Introduction:

Between the summer of 2019 and the spring of 2023, the Lebanese pound went from 1,507.5 to roughly 100,000 per US dollar on the parallel market, a loss of more than 98% of its value. Over the same period the consumer price index published by the Central Administration of Statistics (CAS) multiplied by 45, and annual inflation peaked at 268.8% in April 2023. Lebanon's crisis has been described by the World Bank (2021) as one of the three most severe economic collapses since the mid-nineteenth century, and its origins — an overvalued peg financed by bank deposits and central-bank financial engineering, a sovereign default in March 2020, and the trapping of dollar deposits inside the banking system as “lollars” — are now well documented (Baz et al., 2025; Bitar, 2021).

What is far less documented is the mechanics of how the currency collapse turned into inflation. In the textbook of international finance, exchange-rate pass-through (ERPT) is the elasticity of domestic prices with respect to the nominal exchange rate. For most economies it is well below one and has fallen over recent decades (Campa & Goldberg, 2005; Taylor, 2000). Lebanon, however, combines almost every feature that the literature associates with high pass-through: imports equal to roughly 40% of GDP, a long history of financial dollarization with deposit dollarization above 75% before the crisis, fuel and wheat subsidies that were removed mid-crisis, and, from 2023, an explicit shift of retail pricing, wages and customs valuation to the dollar. It is therefore a natural experiment for asking whether pass-through in a hyperinflationary, dollarizing environment reaches unity, how quickly it does so, and whether it changes over the course of the crisis.

The gap this paper addresses is twofold. First, existing work on Lebanon's crisis is largely narrative or focuses on its banking and fiscal roots; I found no published estimate of monthly exchange-rate pass-through covering the full 2019–2026 cycle, from peg break to stabilization. Second, the ERPT literature on dollarized economies (Carranza et al., 2009; Reinhart et al., 2003) relies mostly on Latin American episodes from the 1980s and 1990s; Lebanon offers a recent, high-frequency case with an unusually well-measured parallel rate.

My core research question is: How much, and how fast, did depreciation of the parallel-market Lebanese pound pass through into consumer prices between 2019 and 2026, and did the degree of pass-through change as the economy dollarized?

To answer it, my study aims to:

- Build a validated monthly dataset of the CAS consumer price index and the parallel-market exchange rate for January 2018 to March 2026.
- Measure cumulative pass-through over the whole crisis and over three distinct phases (peg break, hyperinflation, stabilization).
- Estimate short-run pass-through and its lag structure with distributed-lag regressions robust to autocorrelation.
- Test for a long-run relationship between prices and the exchange rate and estimate the speed of adjustment with an error-correction model.
- Track the evolution of pass-through over time with rolling regressions, and interpret it in light of the dollarization and pricing-power literature.
- Draw implications for stabilization policy in Lebanon and for other economies with parallel exchange markets.

Literature Review:

The theoretical framework of exchange-rate pass-through begins with the law of one price, which implies that under exporter-currency pricing, a local currency depreciation should transmit one-for-one into import prices. Goldberg and Knetter (1997) surveyed two decades of evidence and established that pass-through into US import prices reaches only 50–60%, with even smaller effects on consumer prices owing to distribution margins, local markups, and non-traded inputs. Campa and Goldberg (2005) confirmed incomplete and declining pass-through across OECD economies, attributing the shift to changing import structures favor manufacturing goods priced in local currency.

A second literature investigates cross-country and temporal variations in pass-through. Taylor (2000) proposed that pass-through is endogenous to a country's inflation environment: high and persistent inflation prompts firms to treat cost shocks as permanent, accelerating price adjustments, whereas low inflation encourages margin absorption. Empirical tests by Choudhri and Hakura (2006) across 71 countries confirmed a strong link between inflation levels and pass-through, showing elasticities near unity under high inflation. Ca' Zorzi et al. (2007) and Ha et al. (2020) corroborated these findings in broader emerging-market samples, showing pass-through peaks where central bank credibility is lowest. At the microeconomic level, Devereux and Yetman (2010) demonstrated that large exchange-rate shocks make the menu costs of sticky pricing unsustainable. Furthermore, Gopinath et al. (2020) demonstrated that dominant currency pricing makes the bilateral USD rate the primary driver of pass-through for small importing nations.

A third stream focuses specifically on dollarized environments. Reinhart et al. (2003) showed that dollar-dependent economies experience higher pass-through and compromised monetary sovereignty. Carranza et al. (2009) modeled the underlying mechanism: as foreign currency dominates contracts and pricing, the exchange rate becomes the default unit of account, causing pass-through to approach unity as local prices adjust to track market exchange rates. This reflects Cagan's (1956) classic hyperinflation insight that exchange rates act as the primary coordinating price during severe monetary instability. In a review of major devaluations (Argentina 2002, Brazil 1999, Korea 1997), Burstein and Gopinath (2014) observed that CPI pass-through often starts low before expanding over subsequent years.

Literature on Lebanon's recent crisis remains limited and largely qualitative. Dibeh (2002) studied the 1984–1992 depreciation (where the pound dropped from 4 to 2,500 LBP/USD), finding that inflation tracked depreciation almost one-for-one due to exchange-rate expectations. Bitar (2021) highlighted the inherent instability of Lebanon's pre-crisis "dollarization with a peg," while Baz et al. (2025) detailed how remittance-fueled consumption created severe balance-sheet mismatches prior to the 2019 collapse. IMF (2023) and World Bank (2023) reports tracked the multi-tier exchange rate framework before its ultimate consolidation in 2023–2024.

From a modern perspective, no study can ignore the increasingly significant impact of the technological surge of AI especially on finance, Blockchain technology has been found to increase the performance of SMEs (Khalife et al., 2024), and reduce the required return for equity financing of those companies (Rizk & Sassine, 2023) when combined with proper project description (Yin et al., 2025) and financial transparency (Saber & Sassine, 2022), furthermore, technology and digitalization has been found a variable attributing to innovation according to a study conducted by Kamel et al. (2026), however to properly leverage AI, several conditions stand, smart decisions

and operational experience (Subrahmanyam & Beainy, 2027), proper use of business analytics (Azoury et al., 2024), as well as knowledge management (Subrahmanyam et al., 2024) and business experience (Chaanine et al., 2023), furthermore, proper country governance and support is required (Athari et al., 2023) especially in vulnerable environments, sometimes a full scale organizational redesign is required (Subrahmanyam & Saber, 2027).

Crucially, no existing study quantifies the monthly exchange-rate price dynamic across Lebanon's full crisis cycle, largely because no official monthly parallel rate dataset existed. By leveraging modeled estimates from the World Bank's Real-Time Prices program (Andrée, 2024) cross-checked against *lirate.org* crowdsourced data, this study fills that gap. Paired with CAS consumer price index data, this paper delivers the first high-frequency estimates of short-run, long-run, and rolling pass-through for Lebanon (2019–2026), testing whether the theoretical frameworks of Taylor (2000) and Carranza et al. (2009) hold during acute monetary distress.

Methodology:

I designed this study as a single-country monthly time-series analysis. The sample runs from January 2018 to March 2026, giving 99 observations of the price level and 98 monthly changes. I keep 19 pre-crisis months (January 2018–July 2019) as a control window in which the peg still held, and I treat August 2019 — the month in which the World Bank series first records a parallel premium above 4% — as the start of the crisis. Following the narrative in Baz et al. (2025), I then split the crisis into three phases: Phase 1, peg break (August 2019–December 2020); Phase 2, hyperinflation and multiple exchange rates (January 2021–July 2023); and Phase 3, stabilization of the parallel rate at about 89,500 LBP/USD (August 2023–March 2026). Table 1 summarizes the variables and their sources.

Table 1: Variables, definitions and data sources

Variable	Definition	Source	Frequency / span
CPI (p)	Headline consumer price index, Dec 2013 = 100, 12 COICOP divisions, 2012 weights	Central Administration of Statistics (2026), CPI data explorer, yearly exports	Monthly, Jan 2018–Mar 2026 (99 obs.)
Parallel rate (e)	Unofficial LBP/USD rate, national market average of monthly estimates	World Bank RTFX, LBN_2023_RTFX_v01_M, version 2026-08-24 (Andrée, 2024)	Monthly, Jan 2012–Aug 2026; used Jan 2018–Mar 2026
Validation series	Mid-point of buy/sell quotations, monthly average	<i>lirate.org</i> archive (datanals/datasets mirror)	Monthly, Dec 2019–Mar 2022 (28 obs.)
$\Delta p, \Delta e$	$100 \times$ first difference of natural logs (monthly % change)	Author's calculation	98 obs.

Variable	Definition	Source	Frequency / span
Phases	1: Aug 2019–Dec 2020; 2: Jan 2021–Jul 2023; 3: Aug 2023–Mar 2026	Author's definition following Baz et al. (2025)	17 / 31 / 32 months

Note: COICOP = Classification of Individual Consumption According to Purpose. The pre-crisis window is used only for descriptive comparison. $n = 99$ monthly observations of the level; regressions in first differences lose one observation plus lags.

The price variable is the headline CAS consumer price index (December 2013 = 100), which covers 12 COICOP divisions with weights drawn from the 2012 household budget survey. I exported the index month by month from the CAS data explorer, one file per year, and checked that every month appearing in two files (as current month, previous month, or same month of the previous year) carried identical values; there were no discrepancies and no missing months. Because the CAS basket includes rent and public tariffs that were frozen in pounds for long periods, the headline index is a conservative measure of pass-through; food inflation, for example, peaked at 483% year-on-year in January 2022.

The exchange-rate variable is the national “Market Average” of the unofficial LBP/USD rate from the World Bank’s Real-Time Exchange Rates (RTFX) dataset for Lebanon (Andrée, 2024), which the World Bank compiles from World Food Programme market monitoring and public quotations and models with a GARCH filter to produce monthly open, high, low and close estimates. I use the monthly average. To validate it, I compared it with an archived scrape of lirate.org, the platform most widely used by Lebanese households and businesses, covering December 2019 to March 2022 (28 months). The two series have a correlation of 0.9999 in logs and a mean absolute deviation of 0.84%, which gives me confidence that the RTFX series tracks the rate at which transactions were actually settled. From August 2023 onward the RTFX series coincides with the Banque du Liban’s 89,500 rate, which became the official rate in early 2024.

Let p be the natural logarithm of the CPI and e the natural logarithm of the parallel rate. My empirical strategy proceeds in five steps. First, I compute descriptive statistics and the cumulative pass-through ratio, defined as the change in p divided by the change in e over a window, which equals one under complete pass-through. Second, I test both series for unit roots with the augmented Dickey–Fuller test (Dickey & Fuller, 1979), with lag length chosen by the Akaike criterion. Third, I estimate the short-run pass-through equation:

$$\Delta p_t = \alpha + \sum_{k=0}^3 \beta_k \Delta e_{t-k} + \gamma \Delta p_{t-1} + \varepsilon_t \quad (1)$$

where β_0 measures contemporaneous pass-through, $\Sigma \beta_k$ the pass-through within one quarter, and $\Sigma \beta_k / (1 - \gamma)$ the implied long-run multiplier. Because monthly inflation during a hyperinflation is strongly autocorrelated and heteroskedastic, I use Newey and West (1987) heteroskedasticity-and-autocorrelation-consistent standard errors with four lags, and I test the null of complete quarterly pass-through ($\Sigma \beta_k = 1$) with a Wald test. I estimate equation (1) for the whole crisis and separately

for Phases 1 and 2; Phase 3 is excluded from the regression because the exchange rate has almost no variance in that window, which would make the coefficients meaningless.

Fourth, I estimate the long-run relationship $p_t = \theta + \lambda e_t + u_t$, where λ is the long-run elasticity, and test for cointegration with the Engle and Granger (1987) residual-based test. Since the test has low power in an 80-observation sample with structural breaks, I also estimate an error-correction model:

$$\Delta p_t = \alpha + \beta_0 \Delta e_t + \beta_1 \Delta e_{t-1} + \gamma \Delta p_{t-1} + \phi \hat{u}_{t-1} + \varepsilon_t \quad (2)$$

in which ϕ measures the share of last month's deviation from the long-run relationship that is corrected each month; a significantly negative ϕ is itself evidence of a long-run link, and the implied half-life of a deviation is $\ln(0.5)/\ln(1+\phi)$. Fifth, to capture time variation, I re-estimate the sum of the coefficients on Δe_t to Δe_{t-2} in 24-month rolling windows, keeping only windows in which the exchange rate moved by more than 0.5% in at least twelve months, and I complement this with Granger (1969) causality tests. All computations were carried out in Python 3.12 with the pandas and statsmodels libraries; the code and the merged dataset are available on request, so every table can be replicated from the two public sources.

Results:

Figure 1 plots both series on a logarithmic scale, indexed to July 2019 = 100. Two features stand out. First, the exchange rate led prices throughout Phases 1 and 2: the red line is above the blue line at every point until mid-2023. Second, the gap closed completely by the end of 2023 and then reversed, because prices kept rising after the exchange rate stopped. By March 2026 the CPI stood at 8,464 (December 2013 = 100), 78 times its July 2019 level, while the parallel rate at 89,500 LBP/USD was 59 times its July 2019 level.

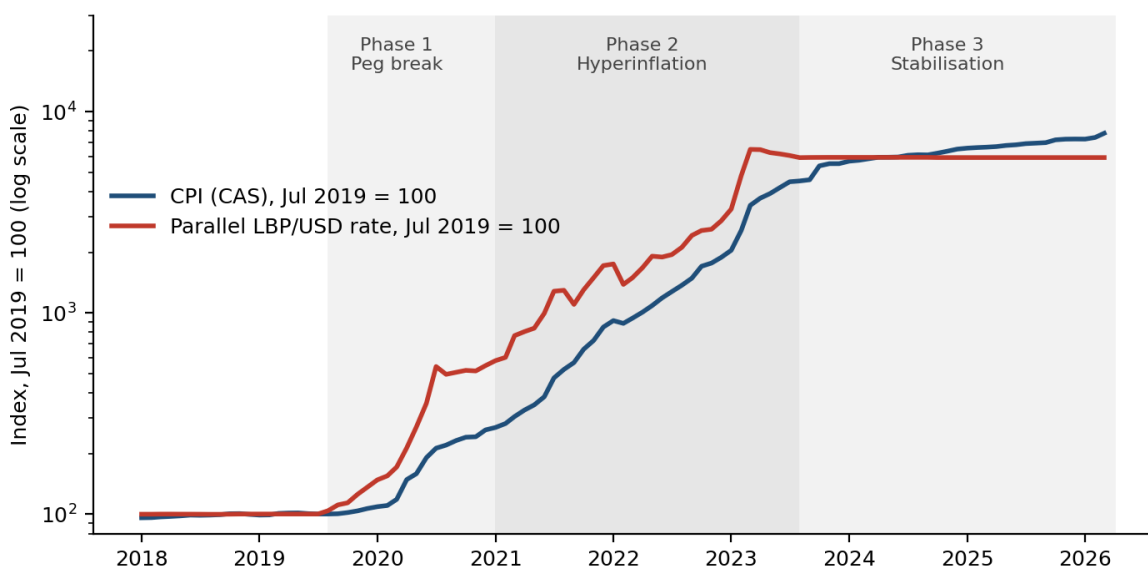


Figure 1: Consumer prices and the parallel LBP/USD rate, July 2019 = 100 (log scale). Shaded bands mark Phases 1–3.

Table 2 reports descriptive statistics by phase. In the pre-crisis window monthly inflation averaged 0.24% with the rate flat. In Phase 1 the pound depreciated at 10% a month on average while prices rose 5.7% a month, a ratio of 0.57. In Phase 2 the relationship inverted: inflation averaged 9.2% a month against depreciation of 7.8%, a ratio of 1.18, as prices caught up with the earlier depreciation and subsidies were removed. In Phase 3 the rate was flat (−0.1% a month) but inflation continued at 1.7% a month, cumulating to 55 log points (+74%). Over the whole crisis the cumulative log change in the CPI (436 points) slightly exceeds that of the exchange rate (408 points): the cumulative pass-through ratio is 1.07, and 0.93 if the window is stopped in July 2023, when the rate stabilized. Figure 2 shows the monthly changes, and Figure 3 the year-on-year rates: depreciation peaked at 441% in July 2020, inflation at 269% in April 2023, a month after the largest single monthly price jump in the CAS series (+33.3% in March 2023).

Table 2: Descriptive statistics of monthly log changes by phase

Period	n	Mean Δp (%)	SD Δp	Mean Δe (%)	SD Δe	Cum. Δp	Cum. Δe	Ratio
Pre-crisis (Jan 2018–Jul 2019)	19	0.24	0.70	0.01	0.06	4.3	0.2	—
Phase 1: Peg break (Aug 2019–Dec 2020)	17	5.66	6.38	9.99	12.26	96.2	169.8	0.57
Phase 2: Hyperinflation (Jan 2021–Jul 2023)	31	9.16	6.18	7.75	12.33	283.9	240.4	1.18
Phase 3: Stabilization (Aug 2023–Mar 2026)	32	1.73	2.80	−0.07	0.43	55.5	−2.3	—
Full crisis (Aug 2019–Mar 2026)	80	5.45	6.07	5.10	10.34	435.7	407.9	1.07

Note: Δp and Δe are $100 \times$ monthly changes in natural logs. Cumulative columns are sums of monthly log changes in percentage points; the ratio is cumulative Δp divided by cumulative Δe and equals 1 under complete pass-through. The ratio is not reported where the exchange rate barely moved.

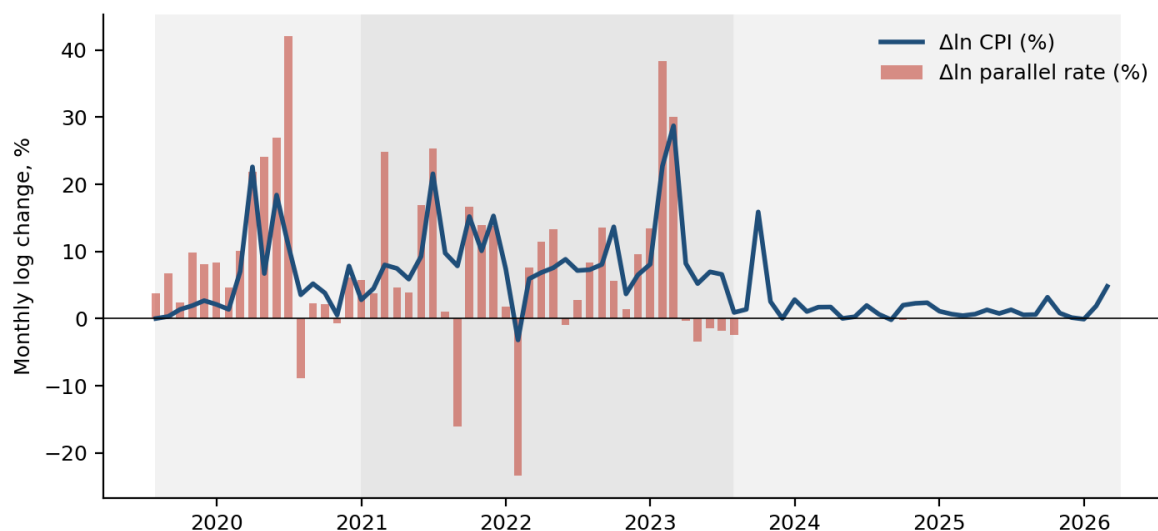


Figure 2: Monthly log changes in the CPI (line) and the parallel rate (bars), August 2019–March 2026.

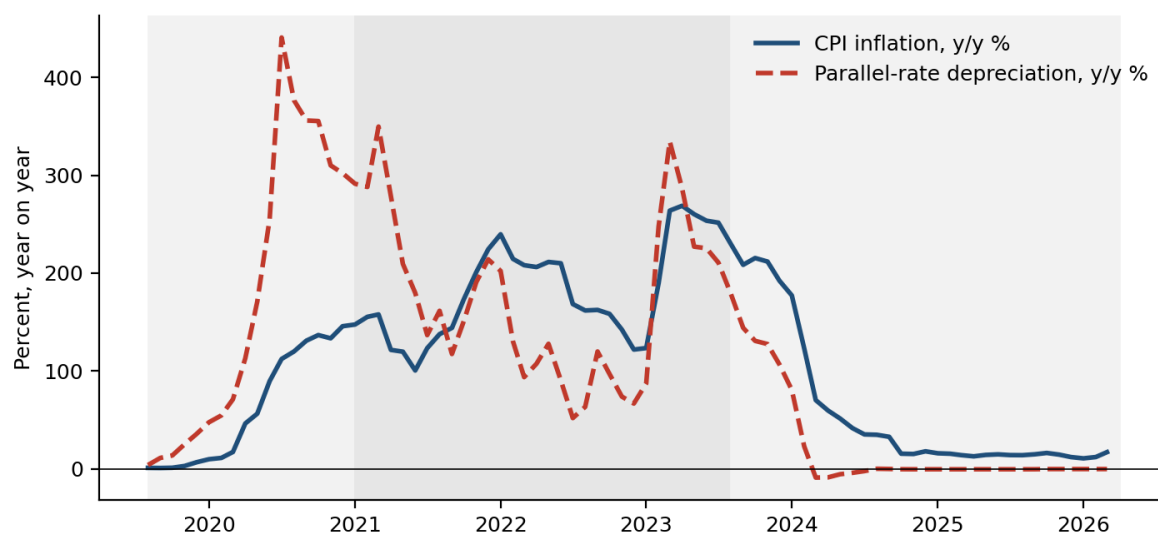


Figure 3: Year-on-year CPI inflation and parallel-rate depreciation, August 2019–March 2026.

Table 3 presents the unit-root tests. Both log levels are clearly non-stationary (ADF p-values of 0.99 and 0.92 with trend), while both first differences are stationary at the 5% level or better. The variables are therefore integrated of order one and can be analysed in differences and, potentially, in a cointegrating relationship.

Table 3: Augmented Dickey–Fuller unit-root tests, August 2019–March 2026

Series	Deterministic terms	Lags (AIC)	ADF statistic	p-value	Conclusion
ln CPI	constant + trend	1	−0.04	0.994	Non-stationary, I(1)

Series	Deterministic terms	Lags (AIC)	ADF statistic	p-value	Conclusion
ln parallel rate	constant + trend	2	-1.15	0.921	Non-stationary, I(1)
$\Delta \ln \text{CPI}$	constant	2	-3.06	0.030	Stationary at 5%
$\Delta \ln \text{parallel rate}$	constant	1	-5.31	<0.001	Stationary at 1%

Note: Lag length selected by the Akaike information criterion. p-values are MacKinnon approximate p-values.

Table 4 reports the short-run pass-through regressions. Over the whole crisis the contemporaneous coefficient is 0.35 (HAC standard error 0.06), highly significant; the three lags add a further 0.11, so that 46% of a depreciation is passed into consumer prices within a quarter. The Wald test rejects complete quarterly pass-through decisively ($p < 0.001$). The lagged inflation term is positive (0.23) and borderline significant, and the constant of 1.8 percentage points per month is significant: even with a stable exchange rate, prices were rising, which anticipates the Phase 3 result. The pattern is similar in the two depreciation phases: contemporaneous pass-through of 0.40 in Phase 1 and 0.39 in Phase 2, with quarterly sums of 0.66 and 0.59. A simpler regression with only the contemporaneous change yields 0.41 with an R^2 of 0.49; adding lags and the autoregressive term raises the R^2 to 0.59.

Table 4: Short-run pass-through regressions (equation 1), dependent variable Δp_t

	Full crisis Aug 2019– Mar 2026	Phase 1 Aug 2019–Dec 2020	Phase 2 Jan 2021–Jul 2023	Depreciation era Aug 2019–Jul 2023
Constant	1.83** (0.72)	0.74 (1.66)	3.29*** (0.95)	2.54 (1.57)
Δe_t (contemporaneous)	0.352*** (0.060)	0.403*** (0.114)	0.393*** (0.049)	0.334*** (0.069)
Δe_{t-1}	0.032 (0.058)	0.113** (0.052)	0.080 (0.090)	0.010 (0.066)
Δe_{t-2}	0.036 (0.036)	0.050 (0.040)	0.065 (0.055)	0.027 (0.033)
Δe_{t-3}	0.044 (0.030)	0.094*** (0.034)	0.055 (0.043)	0.023 (0.037)
Δp_{t-1}	0.227* (0.133)	-0.322** (0.163)	0.137 (0.131)	0.250 (0.176)
Sum of Δe coefficients (quarterly pass-through)	0.464	0.660	0.593	0.394
Wald test: sum = 1 (p-value)	<0.001	0.009	0.003	<0.001
Implied long-run multiplier	0.600	0.499	0.688	0.526
Observations	81	18	32	49

	Full crisis Aug 2019– Mar 2026	Phase 1 Aug 2019–Dec 2020	Phase 2 Jan 2021–Jul 2023	Depreciation era Aug 2019–Jul 2023
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R² / adjusted R² 0.594 / 0.567 0.525 / 0.328 0.693 / 0.634 0.538 / 0.484

Durbin–Watson 2.14 1.78 2.02 2.18

Note: Newey–West HAC standard errors (4 lags) in parentheses. *, **, *** denote significance at 10%, 5% and 1%. Coefficients are in percentage points of monthly CPI change per percentage point of monthly depreciation. Phase 3 is excluded because the exchange rate is nearly constant in that window. Sample windows start three months earlier than the phase to accommodate lags.

Table 5 turns to the long run. The static regression of log prices on the log exchange rate gives an elasticity of 1.14 (standard error 0.08) over the whole crisis and 0.95 (0.06) over the depreciation era to July 2023, with R² above 0.95 in both cases; neither is statistically different from unity. The Engle–Granger residual test fails to reject the null of no cointegration ($p = 0.61$ and 0.76), which is not surprising given the structural breaks in February 2023 (official devaluation to 15,000) and August 2023 (stabilization). The error-correction model is more informative: over the full crisis the coefficient on the lagged deviation is -0.075 with a standard error of 0.016 , significant at the 1% level, so 7.5% of any gap between prices and their long-run exchange-rate-implied level is closed each month, an adjustment half-life of about nine months. The contemporaneous coefficient in the ECM is 0.37 . In the depreciation-era sub-sample the error-correction term has the expected sign (-0.040) but is not significant, consistent with prices lagging behind the rate throughout that period and only catching up once the rate stopped moving.

Table 5: Long-run elasticity, cointegration test and error-correction model (equation 2)

	Full crisis Aug 2019– Mar 2026	Depreciation era Aug 2019–Jul 2023
Panel A: Long-run (static) regression, ln CPI on ln rate		
Long-run elasticity λ	1.139*** (0.076)	0.950*** (0.059)
R ²	0.956	0.961
Engle–Granger test statistic (p-value)	−1.83 (0.61)	−1.51 (0.76)
Panel B: Error-correction model, dependent variable Δp_t		
Constant	3.33*** (0.69)	3.42** (1.41)
Δe_t	0.365*** (0.045)	0.332*** (0.064)
Δe_{t-1}	0.057 (0.043)	−0.002 (0.061)
Δp_{t-1}	−0.003 (0.109)	0.224 (0.168)
Error-correction term $\hat{u}_{t-1}$ (ϕ)	−0.075*** (0.016)	−0.040 (0.032)
Implied half-life of a deviation (months)	8.9	17.0

	Full crisis Aug 2019– Mar 2026	Depreciation era Aug 2019–Jul 2023
Observations / R^2	79 / 0.681	47 / 0.534

Note: HAC standard errors in parentheses. The Engle–Granger statistic is the ADF t-statistic on the residuals of the Panel A regression, with MacKinnon p-values; the 5% critical value is -3.41 . $\hat{u}_{t-1}$ is the lagged residual from Panel A, in percentage points. Half-life = $\ln(0.5)/\ln(1+\phi)$.

Figure 4 shows the rolling 24-month estimates of the sum of the coefficients on Δe_t to Δe_{t-2} . Pass-through was around 0.41 in the window ending July 2021, fell to a low of 0.28–0.30 in late 2021 and early 2022, then rose steadily: 0.52 by June 2022, 0.62 by June 2023 and 0.67 by July 2024, the last window with enough exchange-rate variation to estimate. The 95% confidence bands exclude zero throughout and, from mid-2022, exclude the early-2022 point estimate. Pass-through therefore roughly doubled over the crisis. Granger tests over the depreciation era find no significant lagged causality in either direction at one to three lags (all $p > 0.10$), which is consistent with transmission occurring within the month rather than with a delay; over the full sample there is weak evidence of bidirectional causality at three lags ($p = 0.04$ and 0.02).

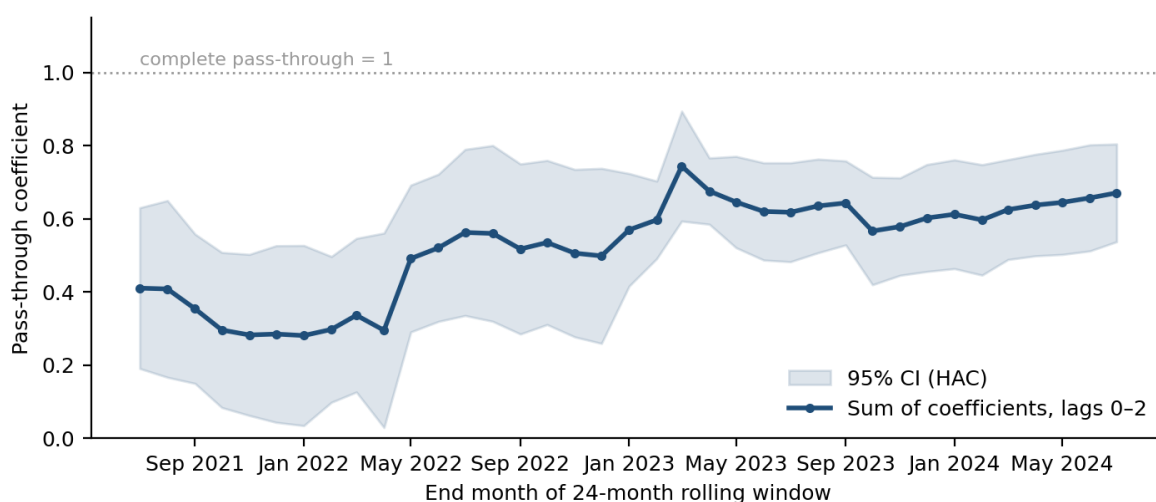


Figure 4: Rolling 24-month estimates of quarterly pass-through (sum of coefficients on Δe_t , Δe_{t-1} , Δe_{t-2}) with 95% HAC confidence bands. Windows shown only where the rate moved by more than 0.5% in at least 12 of 24 months.

Finally, Table 6 summarizes the annual figures that a reader can verify directly on the CAS website. Annual average inflation was 2.9% in 2019, 84.9% in 2020, 154.8% in 2021, 171.2% in 2022 and 221.3% in 2023, before falling to 45.2% in 2024 and 14.6% in 2025. December-to-December inflation dropped from 192% in 2023 to 18% in 2024 and 12% in 2025, and stood at 17% in March 2026, more than two years after the parallel rate stopped moving.

Table 6: Annual summary, 2019–2025

Year	CPI annual average (Dec 2013 = 100)	Annual average inflation (%)	Dec-to-Dec inflation (%)	Parallel rate, Dec average (LBP/USD)
2019	109.74	2.9	7.0	2,059
2020	202.87	84.9	145.8	8,277
2021	516.82	154.8	224.4	25,998
2022	1,401.65	171.2	122.0	43,389
2023	4,504.10	221.3	192.3	89,700
2024	6,541.89	45.2	18.1	89,500
2025	7,495.94	14.6	12.2	89,500

Note: CPI averages and annual average inflation from the CAS “Yearly inflation trend” table; December-to-December inflation and December parallel rates computed by the author from the monthly series.

Discussion and Conclusion:

This study set out to analyze how a currency collapse transmits into domestic inflation. Leveraging 99 months of official consumer price index (CPI) data paired with a validated monthly parallel-market exchange rate series, I show that exchange-rate pass-through in Lebanon between 2019 and 2026 was complete in the long run, rapid yet incomplete in the short run, and systematically increasing over time. Approximately 35–41% of a monthly depreciation passed into consumer prices within the same month, reaching roughly half within a quarter, while the remaining gap adjusted gradually via an error-correction process at a rate of 7.5% per month. By March 2026, the aggregate price level had risen 78-fold relative to a 59-fold surge in the exchange rate, yielding a cumulative log elasticity of 1.07.

The theoretical implications closely align with the predictions of Taylor (2000) and Carranza et al. (2009). Whereas firms in low-inflation economies tend to absorb exchange-rate volatility within profit margins, persistent inflation in Lebanon led to widespread dollarization across rents, salaries, tuition, customs, and taxes. As the US dollar became the primary unit of account, the rolling pass-through coefficient more than doubled from 0.29 to 0.67. Pass-through is therefore not a fixed structural parameter, but an endogenous outcome of the prevailing monetary regime. Granger causality tests reinforce this interpretation: transmission was near-contemporaneous, reflecting a high-frequency pricing regime where local merchants update prices daily using mobile exchange-rate tracking applications.

From a policy perspective, these findings offer sobering insights for macroeconomic stabilization. The de facto peg of the parallel rate at 89,500 LBP/USD in August 2023 and its subsequent adoption as the official rate successfully halted the depreciation–inflation spiral, driving year-on-year inflation down from a peak of 269% to 12–17%. However, stabilization did not eliminate inflation entirely. Prices rose by an additional 74% following exchange-rate stabilization, as frozen

administrative tariffs, phased-out fuel subsidies, and depressed public wages gradually realigned with the new nominal anchor. For policymakers in Lebanon and other economies managing parallel foreign-exchange markets—such as Egypt, Nigeria, Argentina, and Iran—the central lesson is that exchange-rate unification eliminates the primary engine of inflation but leaves structural inertia intact. Achieving single-digit inflation requires a comprehensive, credible fiscal and monetary framework rather than reliance on a nominal rate anchor alone.

These conclusions are subject to several empirical limitations. First, the parallel-market rate relies on a modeled estimate rather than an official central bank series, though its near-perfect correlation with lirate.org crowdsourced data across 28 months provides strong validation. Second, the official CAS basket weights date back to 2012, likely under-representing items experiencing the most extreme price adjustments; a robustness check focused on the food sub-index would likely yield even higher pass-through estimates. Third, a crisis sample of 80 months limits power for cointegration tests, particularly given the structural breaks observed in 2023, which justifies relying on the error-correction parameter as the primary metric of adjustment. Fourth, treating the exchange rate as strictly exogenous within the month—while standard in pass-through literature—may understate feedback loops common during hyperinflations. Finally, the bivariate framework excludes potentially relevant controls, such as broad money growth, world commodity prices, and the precise timing of subsidy rollbacks.

Future research can build upon this dataset in three key directions: first, estimating disaggregated pass-through by COICOP division to map the sequence of sectoral dollarization; second, incorporating money supply growth and international commodity price shocks into a vector error-correction framework (VECM); and third, conducting comparative cross-country analyses with recent devaluations in Egypt (2023–2024) and Nigeria’s naira unification.

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